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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/424,667	03/15/2000	Makoto Kudo	104822	8318

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EXAMINER	
BONZO, BRYCE P	
ART UNIT	**PAPER NUMBER**
2184	9

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/424,667	KUDO ET AL.	
	Examiner	Art Unit	
	Bryce P Bonzo	2184	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *27* is/are allowed.

6)☒ Claim(s) *1-14,17-26,28 and 29* is/are rejected.

7)☒ Claim(s) *15 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

NON-FINAL OFFICIAL ACTION

Status of the Claims

Claims 1-12, 17-25, 28 and 29 are rejected under 35 USC §102.

Claims 13,14 and 26 are rejected under 35 USC §103.

Claims 15 and 16 are objected while containing allowable matter.

Claim 27 is allowed.

Notice Regarding Fees

Applicant is advised that claims 19-28 have been interpreted by the Examiner as being in independent form. Claims 1-18 are directed to an embodiments of the present invention in a microcomputer an having on-chip debugging function. Claims 19-28 are directed to electronic instruments which contain features previously described in earlier claims. The examiner views the referencing of prior claims as a shorthand form which *does not render the claim in dependent form.* As these claims are being examined and fully treated as *independent claims*, the balance of the fees shall be charged to the Applicant at the time of mailing of this Official Action. This full treatment and consideration as an allowable claim is demonstrated by claim 27 being allowed, while claims 15 and 16 are objected as they themselves depend from claim 1.

Rejections under 35 USC §102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-12, 17-25, 28 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Mann.

As per claim 1, Mann discloses:

a central processing unit for executing instructions (Figure 1, item 102); and

a first monitor means for performing data transfer to and from a second means (Figure 1, item 100), determining a primitive command to be executed based on the receive data from said second monitor means (column 6, lines 30-53; column 56-63), and performing processing for execution of the determined primitive command (column6, lines 12-29; column 7, lines 1-26), said second monitor means for being provided outside said microcomputer for performing a processing to convert a debugging command into at least one primitive command (column 11, lines 34-38; column 5, lines 55-58).

As per claim 2, Mann discloses:

wherein said primitive command includes a command for starting an execution of a user program (column 21, lines 63 through column 22, line 32), a command for writing data to an address on a memory map in a debugging mode (column 14, .lines 45-59) and a command for reading data from the address on said memory map (column 14, lines 45-59).

As per claims 3 and 4, Mann discloses:

a control register used for execution of instructions in said central processing unit and having an address thereof allocated on memory map in debugging mode(column 21, lines 53-62; column 19, lines 53-63).

As per claims 5 and 6, Mann discloses:

a monitor RAM into which contents of an internal register of said central processing unit are saved (column 7, lines 42-51), and having an address thereof allocated on a memory map in a debugging mode (column 19, lines 53-63).

As per claims 7 and 8, Mann discloses:

a terminal connected to a single bi-directional communication line for performing a half-duplex bi-directional communication between said terminal and said second monitor means (column 7, lines 63 through column 8, line 20; Figure 2; TAP is widely

known to only be able to transmit or receive at any given time, and is not able to transmit and receive simultaneously),

wherein, on condition that said first monitor means being a slave has received data from said second monitor means being a master, said first monitor means performs a processing corresponding to the received data and sends response data corresponding to the received data to said second monitor mean (column 7, lines 63 through column 8, line 20; column 8, lines 64 through column 9, lines 22).

As per claims 9 and 10, Mann discloses:

wherein the data received from said second monitor means includes an identification data of the primitive command to be executed by said first monitor means (column 7, lines 15-41; Table 1).

As per claims 11 and 12, Mann discloses:

wherein said first monitor means transfers fixed-length data to and from second monitor means (column 7, lines 15-41; column 12, lines 14-41).

As per claims 17 and 18, Mann discloses:

said first monitor means includes a monitor RAM which is readable and writable (column 19, lines 44-63 and column 20, lines 63-66), and

when a break of an execution of an user program occurs and a mode is shifted to a debugging mode (column 19, lines 33 through column 20, line 31), said first monitor

means saves a program counter value of said central processing unit and contents of an internal register into said monitor RAM (column 21, lines 16-62).

As per claim 19, Mann discloses:

a microcomputer according to claim 1 (see the above rejection of claim 1);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 20, Mann discloses:

a microcomputer according to claim 2 (see the above rejection of claim 2);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 21, Mann discloses:

a microcomputer according to claim 3 (see the above rejection of claim 3);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 22, Mann discloses:

a microcomputer according to claim 5 (see the above rejection of claim 5);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 23, Mann discloses:

a microcomputer according to claim 7 (see the above rejection of claim 7);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 24, Mann discloses:

a microcomputer according to claim 9 (see the above rejection of claim 9);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 25, Mann discloses:

a microcomputer according to claim 11 (see the above rejection of claim 11);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 28, Mann discloses:

a microcomputer according to claim 17 (see the above rejection of claim 17);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

As per claim 29 Mann discloses:

second monitor means for performing processing for converting a debugging command by a host into at least one primitive command (column 11, lines 34-387; column 5, lines 55-58); and

first monitor means for performing data transfer to and from said second means, determining a primitive command to be executed based on the receive data from said second monitor means, and performing processing for execution of the determined primitive command (column 6, lines 12-53; column 7, lines 1-26; column 8, lines 56-63).

Rejections under 35 USC §103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13, 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mann.

As per claims 13 and 14, Mann discloses:

the prior limitations claim 1 (see above rejection of claim 1).

Mann does not disclose as part of his invention: wherein a monitor program for executing a processing of said first monitor means is stored in ROM. Mann does disclose the practice however (column 3, lines 25-30). The storing of the program in a ROM is widely used and thus familiar to those skilled in the art of debugging, further Mann discloses that the use of ROM stored program provides incredibly fast program transfer and is low in cost. Thus it would have been obvious to one of ordinary skill in the art at the time of invention to provide for a ROM program as Mann disclosed in the prior art into the Mann's new embodiment which allows for the OS manipulation, thus creating by Mann's own admission, a faster and cheaper system.

As per claim 2, Mann discloses:

a microcomputer according to claim 13 (see the above rejection of claim 13);

an input source of data to be processed by said microprocessor (column 20, lines 57-66; the operating system provides the threads to be monitored as a source of input to the processor); and

an output device for outputting data processed by said microcomputer (this is an *inherent* feature of processing systems, as the failure to supply an output renders the enter device useless).

Allowable Subject Matter

Claim 27 is allowed.

Claims 15 and 16 are objected to while containing allowable matter.

The following is an examiner's statement of reasons for allowance.

The following limitations in combination with the remainder of the claims over come the prior art:

a first frequency division circuit for dividing a first clock and for generating a first sample clock for sampling each bit ...

wherein said first monitor means supplies said first clock to said second monitoring means....

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Applicant is reminded the indication of allowable matter is given to the claims as a whole. As such any modification to the claims changing the scope may jeopardize this indication of allowable subject matter, and result in a new

Final Rejection. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryce P Bonzo whose telephone number is (703)305-4834. The examiner can normally be reached on Monday through Friday from 5:30AM to 2:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel, can be reached on (703) 305-9713. For facsimile transmission:

After-final	*(703) 746-7238*
Official	*(703) 746-7239*
Non-Official/Draft	*(703) 746-7240*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

SCOTT BADERMAN
PRIMARY EXAMINER